

## CLAIMS

We claim:

1. An athletic tape for wrapping a portion of a person's body, the athletic tape having a longitudinal axis and being adapted to provide a controlled support for the portion of the person's body, the athletic tape comprising:

a tape body being stretchable along the longitudinal axis from a first position to a second position, in which the tape body is elongated by a predetermined amount relative to the first position, the tape body comprising:

a first elastomer layer defining a tape length, as measured along the longitudinal axis, of the tape body;

a support structure disposed within the elastomer layer generally along the longitudinal axis in an at least partially non linear fashion while the tape body is in the first position so that a length of the support structure, as measured along a surface thereof, is greater than the tape length of the first elastomer layer; and

wherein when the tape body is stretched into the second position, the support structure is at least partially straightened so that the support structure is more linear, relative to when the tape body is in the first position, the straightening of the support structure causing energy to be dissipated and generally preventing further elongation of

the elastomer layer along the longitudinal axis past the second position,  
the support structure comprising a plurality of fibers.

2. The athletic tape of claim 1, wherein the plurality of fibers include high  
tensile fibrous material.

3. The athletic tape of claim 1, wherein the plurality of fibers include  
fiberglass fibers.

4. The athletic tape of claim 2, wherein the plurality of fibers are woven.

5. The athletic tape of claim 2, wherein the plurality of fibers are woven  
into a ribbon.

6. The athletic tape of claim 5, wherein the ribbon is positioned in a  
generally sinusoidal fashion within the elastomer layer while the tape body is in the  
first position.

7. The athletic tape of claim 1, wherein the tape body has top and bottom  
surfaces, the bottom surface facing the portion of the person's body when the athletic  
tape is wrapped thereover, the plurality of fibers defining multiple, stacked fiber

layers between the top and bottom surfaces.

8. The athletic tape of claim 7, wherein the plurality of fibers are stacked between four (4) and sixteen (16) times between the top and bottom surfaces.

9. The athletic tape of claim 8, wherein the plurality of fibers are stacked ten (10) times.

10. The athletic tape of claim 1, wherein the plurality of fibers include metal fibers.

11. The athletic tape of claim 1, wherein the plurality of fibers include ceramic fibers.

12. An athletic tape for wrapping a portion of a person's body, the athletic tape having a longitudinal axis and being adapted to provide a controlled support for the portion of the person's body, the athletic tape comprising:

a tape body being stretchable along the longitudinal axis from a first position to a second position, in which the tape body is elongated by a predetermined amount relative to the first position, the tape body comprising:

a first elastomer layer defining a tape length, as measured along

the longitudinal axis, of the tape body;

a support structure disposed at least partially within the elastomer layer generally along the longitudinal axis in an at least partially non linear fashion while the tape body is in the first position so that a length of the support structure, as measured along a surface thereof, is greater than the tape length of the first elastomer layer; and

wherein when the tape body is stretched into the second position, the support structure is at least partially straightened so that the support structure is more linear, relative to when the tape body is in the first position, the straightening of the support structure causing energy to be dissipated and generally preventing further elongation of the elastomer layer along the longitudinal axis past the second position.

13. The athletic tape of claim 12, wherein the support structure comprises a cloth layer.

14. The athletic tape of claim 12, wherein the support structure comprises a plurality of cloth layers.

15. The athletic tape of claim 14, wherein at least one of the plurality of cloth layers is formed of high tensile fibrous material.

16. The athletic tape of claim 12, wherein the support structure includes a first plurality of particles therein.

17. The athletic tape of claim 16, wherein the first elastomer layer includes a second plurality of particles.

18. The athletic tape of claim 17, wherein at least one of the first and second plurality of particles includes gel particles.

19. The athletic tape of claim 17, wherein at least one of the first and second plurality of particles includes sand particles.

20. The athletic tape of claim 17, wherein at least one of the first and second plurality of particles includes glass beads.

21. The athletic tape of claim 17, wherein at least one of the first and second plurality of particles includes chopped fibers.

22. The athletic tape of claim 17, wherein at least one of the first and second plurality of particles includes metal particles.

23. The athletic tape of claim 18, wherein at least one of the first and second plurality of particles includes foam particles.

24. The athletic tape of claim 12, wherein the support structure comprises a second elastomer having a plurality of particles therein.

25. A material having a stretch axis and being adapted to regulate energy by distributing and partially dissipating energy exerted thereon, the material comprising:

a material body being elongateable along the stretch axis from a first position to a second position, in which the material body is elongated by a predetermined amount relative to the first position, the material body comprising:

a first elastomer layer defining a material length, as measured along the stretch axis, of the material body;

a support structure disposed within the elastomer layer generally along the stretch axis in an at least partially non linear fashion while the material body is in the first position so that a length of the support structure, as measured along a surface thereof, is greater than the material length of the first elastomer layer; and

wherein when the material body is elongated into the second

position, the support structure is at least partially straightened so that the support structure is more linear, relative to when the material body is in the first position, the straightening of the support structure causing energy to be dissipated and generally preventing further elongation of the elastomer layer along the stretch axis past the second position.

26. The material of claim 25, wherein the support structure comprises a cloth layer.

27. The material of claim 25, wherein the support structure comprises a plurality of cloth layers.

28. The material of claim 25, wherein the support structure includes a first plurality of particles therein.

29. The material of claim 28, wherein the first elastomer layer includes a second plurality of particles.

30. The material of claim 29, wherein at least one of the first and second plurality of particles includes gel particles.

31. The material of claim 25, wherein the support structure is positioned in a generally sinusoidal fashion within the elastomer layer while the material body is in the first position.

32. The material of claim 25, wherein the support structure is generally positioned as at least one of a triangular wave and a square wave within the elastomer layer while the material body is in the first position.

33. The material of claim 31, wherein the elastomer layer comprises silicone.

34. The material of claim 25, further comprising a layer of shrinkable material.

35. The material of claim 34, wherein the shrinkable material is heat shrinkable.

36. The material of claim 34, wherein the shrinkable material is water shrinkable.

37. The athletic tape of claim 1, wherein the percentage increase in the tape length when the tape body moves from the first position to the second position is selected based on a desired range of motion for the portion of the person's body.

38. The athletic tape of claim 1, wherein the athletic tape is wrapped around the portion of the person's body at least twice to form a brace.

39. The athletic tape of claim 38, wherein successive wrappings of the athletic tape are affixed to each other to form a generally one piece brace.

40. The athletic tape of claim 1, wherein the athletic tape is self fusing to allow multiple adjacent wrappings of the athletic tape to fuse together to form an integral piece.

41. The athletic tape of claim 40, wherein the elastomer layer of each of the multiple adjacent wrappings contacts the elastomer layer of the adjacent wrappings to fuse together to form a single elastomer layer.

42. The athletic tape of claim 40, wherein the integral piece is waterproof.

43. The athletic tape of claim 41, wherein the elastomer layer comprises

silicone.

44. A padding for covering a portion of a person's body to provide support and/or impact force dissipation for the portion, the padding having a stretch axis, the padding comprising:

a padding body being elongateable along the stretch axis from a first position to a second position, in which the padding body is elongated by a predetermined amount relative to the first position, the padding body comprising:

a first elastomer layer defining a padding length, as measured along the stretch axis, of the padding body;

a support structure disposed within the elastomer layer generally along the stretch axis in an at least partially non linear fashion while the padding body is in the first position so that a length of the support structure, as measured along a surface thereof, is greater than the padding length of the first elastomer layer; and

wherein when the padding body is elongated into the second position, the support structure is at least partially straightened so that the support structure is more linear, relative to when the padding body is in the first position, the straightening of the support structure causing energy to be dissipated and generally preventing further elongation of the elastomer layer along the stretch axis past the second

position.

45. The padding of claim 44, further comprising a rigid layer of material disposed on at least part of the elastomer layer.

46. A brace for wrapping a portion of a person's body, the brace having a stretch axis and being adapted to provide a controlled support for the portion of the person's body, the brace comprising:

a brace body being elongateable along the stretch axis from a first position to a second position, in which the brace body is elongated by a predetermined amount relative to the first position, the brace body comprising:

a first elastomer layer defining a brace length, as measured along the stretch axis, of the brace body;

a support structure disposed within the elastomer layer generally along the stretch axis in an at least partially non linear fashion while the brace body is in the first position so that a length of the support structure, as measured along a surface thereof, is greater than the brace length of the first elastomer layer; and

wherein when the brace body is stretched into the second position, the support structure is at least partially straightened so that the support structure is more linear, relative to when the brace body is

in the first position, the straightening of the support structure causing energy to be dissipated and generally preventing further elongation of the elastomer layer along the stretch axis past the second position.

47. The brace of claim 46, wherein the brace is a one piece brace.
48. The brace of claim 46, wherein the brace comprises of multiple tape windings.
49. An athletic tape for wrapping a portion of a person's body, the athletic tape having a longitudinal axis and being adapted to provide a controlled support for the portion of the person's body, the athletic tape comprising:
  - a tape body being stretchable along the longitudinal axis from a first position to a second position, in which the tape body is elongated by a predetermined amount relative to the first position, the tape body comprising:
    - a first elastomer layer defining a tape length, as measured along the longitudinal axis, of the tape body;
    - a support structure disposed over the elastomer layer and contacting the elastomer layer at a plurality of locations, the support structure extending generally along the longitudinal axis in an at least partially non linear fashion while the tape body is in the first position

so that a length of the support structure, as measured along a surface thereof, is greater than the tape length of the first elastomer layer; and

wherein when the tape body is stretched into the second position, the support structure is at least partially straightened so that the support structure is more linear, relative to when the tape body is in the first position, the support structure comprising a plurality of fibers.

50. The athletic tape of claim 49, wherein the straightening of the support structure causes energy to be dissipated and generally prevents further elongation of the elastomer layer along the longitudinal axis past the second position.

51. The athletic tape of claim 49, further comprising a layer of shrinkable material.

52. The athletic tape of claim 51, wherein the shrinkable material is heat shrinkable.

53. The athletic tape of claim 51, wherein the shrinkable material is water shrinkable.